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CURRENT LITERATURE.

BOOK REVIEWS.

Bacterial diseases.

THIS quarto volume on bacterial plant diseases, by DR. ERWIN F. SMITH,[1] is a manual for plant pathologists, which, with the author's characteristic care in clearly stating details, covers the subject, from the angle at which a tube should be held during inoculation to plans for the construction of a water still and suggestions as to the proper developer for photographic plates. One of the fundamenta reasons for the abundance of half-finished work on bacterial plant diseases which is annually imposed upon the public has been the lack in all literature of just such a guide. If the admonitions which the author has scattered through the work were heeded the feeling of uncertainty which now pervades the subject in the minds of many would be promptly dissipated.

The Carnegie Institution is surely treading on dangerous ground in publishing such a manual, but if such action can be justified at all, it can be in this case. Here the need is great and the subject is so specialized as to make such a publication impossible except at a financial loss. So great was the need that a proper presentation of the material promised for the second volume could hardly be made without a considerable portion of the matter here given.

The volume is divided into three parts; 186 pages being devoted to the text, 16 to useful laboratory formulæ, and 63 to bibliography. The latter covers the general field of bacteriology, with the exception of plant diseases, this division being reserved for the second volume. The publication is well illustrated, many of the cuts showing the effect of bacteria upon plant tissue. The index covers the entire volume and will be especially useful in connection with the bibliography, which is arranged by subjects in the body of the volume.

Among the many original things in this suggestive work, the discussion of "keeping of records" and "nomenclature and classification" are of special interest. Any one who has attempted to keep an accurate history of the behavior of a plant parasite in the laboratory and in its host when the work has extended over a number of years, has felt the need of an improved system. The subject of bacterial classification has been fairly quiescent for some years, and we have been busy trying to fit the forms as they are found into MIGULA'S somewhat artificial framework. The proposition of the author to replace MIGULA'S *Pseudomonas* by *Bacterium* and send the group represented by *B. anthracis* masquerading under the name of *Aplanobacter* will come to some as a discouragement.

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[1] SMITH, E. F., Bacteria in relation to plant diseases. Vol. I. 4to. pp. xii + 285. Washington: Carnegie Institution, 1905.

In spite of some minor things which seem inseparable from originality, this work is of the first quality and should be in the hands of every plant pathologist. —H. A. HARDING.

MINOR NOTICES.

Grasses of Iowa.— As a supplementary report for 1803 the Iowa Geological Survey issues part II of the *Grasses of Iowa*,[2] prepared by PAMMEL, BALL, SCRIBNER, and others. This is a descriptive and geographical study of the grasses of the state, their general and economic aspects having been treated in part I. Under each genus there is the generic description, with synonymy, a key to the species, a description of the species, often a figure, a list of localities and a map showing the distribution of each form in the state, and a statement of distribution in North America and elsewhere. There is a chapter on physiography and geology, with a map, a section on ecology, and a partial bibliography of works on grasses. The work seems very complete and should be especially serviceable to Iowa botanists. It is a pity state printers are so seldom skilful book-makers.—C. R. B.

Connecticut fungi.— The recently established natural history survey of Connecticut has begun to show results, in the publication of two bulletins listing the Hymeniales and Ustilagineae of the state. The former[3] lists 375 species in 65 genera, gives analytic keys to the genera, and illustrates the commoner species by admirable half-tones, most of which are original. The species of smuts[4] are described with lists of hosts and distribution, and notes on economic features.— C. R. B.

NOTES FOR STUDENTS.

Photosynthesis and temperature.—The interesting results of Miss MATTHAEI on temperature as a limiting factor for photosynthesis[5] have now been extended by her work in cooperation with BLACKMAN.[6] They have endeavored to interpret the quantitative variations of photosynthesis, under approximately natural conditions, in terms of the three limiting factors thereto, viz. (1) intensity of illumination, (2) temperature of leaf, (3) pressure of CO_2. When a leaf is

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[2] PAMMEL, L. H., BALL, C. R., and SCRIBNER, F. L. The grasses of Iowa. Part II, Iowa Geological Survey, supplementary report. 1903. 8vo. pp. xiv + 436, *figs. 270.* Des Moines, Iowa. 1904.

[3] WHITE, E. A., A preliminary report on the Hymeniales of Connecticut. State Geol. and N. H. Survey Bulletin 3. 8vo. pp. 81. *pls. 40.* 1905.

[4] CLINTON, G. P., The Ustilagineae or smuts of Connecticut. Idem, Bull. 5. 8vo, *pp. 45. figs. 55.* 1905.

[5] See BOT. GAZETTE **38** : 476. 1904.

[6] BLACKMAN, F. F., and MATTHAEI, G. L. C., Experimental researches in vegetable assimilation and respiration. IV. A quantitative study of carbon dioxide assimilation and leaf temperature in natural illumination. Proc. Roy. Soc. London B. **76**: 402–460. 1905.